

Sample of Criterion 1.1.1



01/04/23



ग्रीष्मावकाश 30 जून की खलाशे के बाद 1 जुलाई की महाविद्यालय खुला 10/7/23 की ही समायोजन विभाग में सभी शिक्षकओं के बीच एक meeting का आयोजन किया गया। सभी शिक्षकओं की सहमति से उपर्युक्त चीज 03/07/23 से B.A II, B.A III एवं M.A IIIrd sem का class शुरू करने की निर्णय लिया गया। साथ ही सभी की syllabus के अनुसार paper भी कोट दिए गए। कौल - पत्रों की शुभान रूप से चलाने की निर्देश भी दिए गए।

विभागाध्यक्ष
डॉ. मधु कुमारी

[Signature]

Dr. Madhu Kumari

Dr. Manal Manjari

[Signature]

Dr. Kumari Soni Rekha

Soni 1-7-23

Dr. Sangita Kumari

[Signature]

श्रीमानवकाश 30 जून की शेषा में
के बाद 1 जुलाई की शेषा में 30 जून की शेषा में
की ही समापनकार विभाग में सभी शिक्षकों
के बीच एक meeting का आयोजन किया
गया। सभी शिक्षकों की सहमति से उपर्युक्त
प्रमाण 03/07/23 से B.A II, B.A III एवं
M.A IIIrd sem का class शुरू करने की निर्णय
लेया गया। साथ ही सभी की syllabus के
आधार पर paper भी कोट किया गया। कौन-
कौन की सुझाव रूप से चयन की निर्देश
भी दिया गया।

विभागाध्यक्ष

डा. राहु कुमारी

[Signature]

Dr. Madhu Kumari

Dr. Manal Manjari

[Signature]

Dr. Kumari Soni Rekha

Soni.1.7.23

Dr. Sangita Kumari

[Signature]

17/08/23

Page No. _____
Date _____

अभागाध्यक्ष विभाग ने आज दिनांक 17/08/23 को एक बैठक आहूत किया गया। इस बैठक में MA Ist Sem. की दाताओं की बैठक आयोजित हुई क्योंकि उनका ही महाविद्यालय की परीक्षा की एनोउसिस Notice आया कि 17/08/23 से MA Ist Sem. का रोल शुरू होगा है।

उसी शिक्षिकाओं से मिलकर विभाग गया कि 17/08/23 से सुबह 10:00 बजे से MA Ist Sem. का रोल शुरू किया जाएगा। साथ ही Syllabus की बोली जाना। अपनी Syllabus की व्यवस्था लीजिए। वही रोल संकलित करने का निर्देश दिया गया।

[Signature]
17/08/23

विभागाध्यक्ष
डॉ० मधु कुमारी

- ① डॉ० मधु कुमारी
- ② डॉ० मृणाल संजयी
- ③ डॉ० संगीता कुमारी

[Signature]
Mural
Kumari

- डॉ० मधु कुमारी — Principles of Sociology (1 paper)
- डॉ० मधु कुमारी — Classical Sociology (2 paper)
- डॉ० मृणाल संजयी — Perspectives in Indian Sociology (3rd paper)
- डॉ० संगीता कुमारी — Rural Sociology (4th paper)

25/01/2024

सिद्धान्त

Page No.
Date

समाधानकर्ता विभाग के माध्यम से 25/01/24 को एक सप्ताह विभाग की सभी शिक्षिकाओं को समाप्त एक सप्ताह समाप्त की गई। प्रत्येक के M.A IInd Sem एवं M.A IVth Sem की दोनों भाग की संयोजन शुरू करने पर प्रकाश की गई। अध्यापिकाओं की अनुमति से की गई। 25/01/2024 से शुरू करने का निर्णय लिया गया। सत्र में सभी शिक्षिकाओं की Syllabus के अनुसार एवं Routine के अनुसार की देखरेख की शुरू करने का निर्देश दे दिया गया।

विभागाध्यक्ष

डा. रमेश कुमार

1. डा. रमेश कुमार -
2. डा. कुंसी देवी -
3. डा. संगीता कुं -
4. डा. रवीन्द्र कुं -
5. डा. सुनिता कुं -

13/02/2024

Alanta

Page No.

Date

कार्य दिनांक 13/02/2024 को -

समावेशित विभाग में एक बैठक का आयोजन किया गया। बैठक के विद्यमान अतिथि वीर R.P.I 2nd sem. जो New Syllabus का प्रिंट है, उसे पढ़ें और इसे मनी के निर्देश पर प्रकाशना की व्यवस्था में दिनांक 15/02/24 में R.P.I. 2nd sem का class शुरू किया जाए। इसी की Routine एवं Syllabus बॉर्डर के निर्देशों के साथ ही की।

निदेशिका

13/02/24

1. श्री गुरु -
2. श्री सुनील शर्मा -
3. श्री लीला शर्मा -
4. श्री अशोक शर्मा -
5. श्री सुनील शर्मा -

1st July 2024.

Today Routine was finalised and prepared in the Department of Sociology. For this meeting was conducted in the Deptt of Sociology at 10:30 am on 1st July 2024 under the . The meeting was chaired by Head, Dept. of Sociology, Dr. Madhu Kumari and attended by Dr. Minal Manjari and Dr. Kumari, Soni Rekha. Dr. Swarnlata Kumari and Dr. Sulekha Kumari were also present in the meeting.

[Signature]
01/07/24

Dr. Madhu K
Professor & Head
Dept. of Sociology

1. Dr. Madhu K — *[Signature]*
2. Dr. Minal Manjari — *[Signature]*
Head
11/7/24

23/07/2024

Ajanta

Page No.

Date

Meeting

आज दिनांक 23/07/24 को अकादशासन
विभाग में सभी शिक्षिकाओं के बीच एक बैठक
का आयोजन किया गया। इस बैठक B.A IIIrd
Sem के syllabus distribution पर चर्चा हुई।
सभी शिक्षिकाओं को Maj, Min. & MDC में
syllabus को बांटा गया।

M.T.C.

M.T.C

Dr. Madhu K -

Dr. Mrinal Mangari -

Dr. K. Soni Rakha -

Dr. Sangita K -

Dr. Swarnlata K -

Dr. Sulekha K -

M.T.C

Dr. Madhu K -

Dr. Mrinal Mangari -

Dr. K. Soni Rakha -

Dr. Sangita K -

Dr. Swarnlata K -

Dr. Sulekha K -

M.D.C.

Dr. Madhu K -

Dr. Mrinal Mangari -

Dr. Soni Rakha -

Dr. Sulekha K - Sulekha K

Mrinal Mangari - 23/7/24

K. Soni Rakha - 23.7.24

Sangita K -

Swarnlata K - Swarnlata

Sulekha K -

Dr. Madhu K
MOD - Jodhpur

14/5/24

Alanta

Page No.
Date

आज श्लोक 14/6/24 को
इतिहास विभाग में एक बैठक का आयोजन
किया गया। सभी शिक्षिकाओं के सर्वसम्मति से
मा. प्र. सेम का 15/6/24 से 16/6/24 को
मासिक परीक्षा (Viva-voce) लेने का निर्णय लिया
गया।

Lavika

14.5.24

विभाग सभा का हस्ताक्षर :

शिक्षिकाओं का हस्ताक्षर :

1. Dr. Sumita Singh
2. Dr. Kumkum Karmam
3. Dr. Suparna Patel
4. Dr. Kavita Lakshayee

Singh

Kumkum 14/5/24

Lakshayee
14/5/24

13/2/2024

संज्ञा

Page No.

Date

आज दिनांक 13/2/2024 को प्रतिभा
विद्यालय में 12 वीं कक्षा के छात्रों का आयोजन
विद्यार्थियों के बीच में विद्यार्थियों के बीच
भा.उ. के गुरु उत्सव के लिए पाठ्यक्रम के विषय
पर 8 घण्टों की प्रशिक्षण के आयोजन के अनुसार
दिनांक 13/2/24 से भा.उ. के गुरु उत्सव की
कार्य प्रारंभ करने का निर्णय सर्वोच्च में
लिखा गया। सभी विद्यार्थियों को गुरु उत्सव
पर 8 घण्टों की प्रशिक्षण के विषय पर उनमें
प्रशिक्षण का संचालन समानुसार करने की
निर्देशनी दी गई।

Laxmi Singh

विभागाध्यक्ष की हस्ताक्षर:

विद्यार्थियों की हस्ताक्षर:

1. Dr. Samita Singh
2. Dr. Kamkum Kumari
3. Dr. Suparna Patel
4. Dr. Kavita Lakshayee

G. Singh
V. K. Singh
13.2.2024
M. K. Singh
13.2.24

1.7.24

1.7.24

आज दिनांक 01.7.24 को इतिहास
विभाग की सभी शिक्षिकाओं की बैठक
आयोजित की गई।

इस Meeting में मुख्य मुद्दा
यह है कि M.A. III Sem 2023-2024
एवं B.A. III 2022-2024 Batch की छात्रों
का आज से वर्क शुरू हो रहा है। उन
सभी शिक्षिकाओं के लिए डप वर्क के
लिए अभी पिपर का destruction किया गया
है कि अपने-अपने पिपर का पूरी लगन
से अनुसार वर्क अनुशासित ढंग से संचालित
करें।

लक्ष्मी शर्मा
1.7.24
विभागाध्यक्ष

1. Dr Sumita Singh
2. Dr Kunkun Kumari
3. Dr Suparna Patel
4. Dr Kavita Lakshyar

Singh
Kunkun
1.7.2024

lakshyar
1.7.24

Date - 10-07-2023

दिनांक 10-07-2023 को इमिग्रेशन विभाग में विभागाध्यक्षा की अध्यक्षता में एक बैठक बुलाई गयी जिसमें विभाग की सभी शिक्षिकाएँ उपस्थित थीं।

बैठक की मुख्य बिन्दु निम्नलिखित हैं-

1. किन्न-विद्यालय द्वारा कार्य-चार-बिधि स्नातक कीर्ति का प्रथम डीन चुना गया है प्रथम सेमेस्टर (2023-24) में MJC, MA-C से MDC में नामांकित छात्रों का इमिग्रेशन विभाग के पाठ्यक्रम का विभागीय शिक्षिकाओं के बीच विभाजन।
2. M.A. में Exam (2022-24) की छात्रों का, माइ-हेमन डेबन 7th अंक का Writen Exam Aug. में प्रथम स्थान में लिया जाय।
3. विभागीय शिक्षिकाओं शिक्षिकाओं के बीच समय सारिणी का विभाजन।

Laxmi Kumari

1.7.23

विभागाध्यक्षा

विभागीय शिक्षिकाएँ

1. Dr. Sumantha Singh
2. Dr. Kuman Kuman Kuman
3. Dr. Suparna Patel
4. Dr. Kavita Lakshayya

Singh

Kumari

1.7.23

Klakhayya

1.1.23

Klakhayya

1.7.23

8/5/24

Ajanta

Page No.
Date

आज दिनांक 8/6/24 को
प्रतिभा विभाग में एक विभागीय और एक
बैठक आयुक्त की अध्यक्षता में इस बैठक में M&II
SEM के अंतिम परीक्षा 9.6.24 एवं
10.6.24 को लेने का निर्णय लिया गया।

Lavanya
8.5.24

विभागाध्यक्ष का हस्ताक्षर :

निदेशिकाओं का हस्ताक्षर :

1. Dr Sumita Singh
2. Dr Kunkun Kurnan
3. Dr Suparna Patel
4. Dr Kavita Lakshayor

Chingh
Kunkun 8/5/24

Manhajay
8.5.24

Notice (Departmental Meeting)
~~18-07-2023~~

A meeting was held on 18/07/2023 from 3:50 PM to 4:30 PM under the headship of Dr. Shelu Kumari following agenda was discussed :-

- ① Distribution of classes as per new master routine.
- ② Distribution of syllabus
- ③ To conduct the departmental activities

M. S. Sharma
18/7/2023
Head of the Dept
Dept of Botany
J.D. Women's College
Botany.

① Dr. Meenu Gupta

Meenu

② Dr. Premalata Mehta

Premalata
18/7/23

③ Samir Kumar Chatterborly -

Samir

④ Satrudhan Kumar.

Notice (Departmental Meeting)

A departmental meeting is fixed on 10.08.23 at 1.00. So all the departmental staff will attend the meeting for discussion.

- ① Distribution of classes as per routine.
- ② To conduct departmental activities.
- ③ Discussion on Topic Wise class test and Power Point Presentation.

9.08.2023

Seen

Meenul.

Head of the Dept
Dept of Botany
J.D. Women's College
Patna

Don
9/8/23

Ruchika
9/8/23

Notice

(Departmental Meeting) 30.01.2024

A departmental meeting was held on 30/01/2024, all the departmental Teachers and non-teaching staff attended the meeting and following decisions were taken:-

- ① Distribution of Syllabus.
- ② Focus on departmental activities
- ③ To conduct Online classes from 01-02-24 to 12-02-24

M 30/1/2024

(Dr. Shelu Kumar)

Head of the Dept

Department of Botany

J.D. Women's College, Patna

① Dr. Meenu Gupta

② Dr. Prem Lata Mehta

Anurita
30/1/24

③ Swati Priya - Swasthya

④ Samir Kumar Chakraborty - Son

Notice

(Departmental Meeting)

A departmental meeting was held on 21/03/2024, all the department Teachers and non-teaching staff attended the meeting and following decision was taken:-

- ① To conduct Remedial classes of BSc IInd and BSc IIIrd students

M
21/3/24

(Dr. Shelia Kumari)

H.O.D of Botany

(J.D. Women's College, Patna)

① Dr. Meenu Gupta —

② Dr. Premkanta Mehta — $\frac{Rachita}{21/3/24}$

③ Swati Priya — $\frac{sp}{21/3/24}$

④ Soanis Kumar Chakraborty — $\frac{Son}{21/3/24}$

Department of Botany, J. D WOMEN'S COLLEGE, PATNA

CLASS ROUTINE 2023

DAY	CLASS	10:00-10:50AM	10:50-11:40AM	11:40-12:30PM	12:30-1:20PM	1:20-2:10PM	2:10-3:00PM	3:00-3:50PM
MON	XI	P	P	P	P			
	XII	P	P	P	P			
	MJC							T(SP)
	MIC							
	D2H						P(SP)	P(SP)
	D2S			P(MG)	P(MG)	T(SP)		
	D3	T(SK)	T(SK)					
TUE	PG I							
	PG III	T(MG)	T(MG)		T(SK)	T(SK)	T(MG)	
	XI	P	P	T(SK)	T			
	XII	P	P	P	P		T(SP)	
	MJC			P	P			
	MIC						P(SP)	P(SP)
	D2H				T(SP)			
WED	D2S			P(SK)	P(SK)			
	D3	T(MG)	T(MG)					T(SP)
	PG I							
	PG III	T(SK)	T(SK)		T(MG)	T(MG)	T(SK)	
	XI	P	P	T(MG)	T			
	XII	P	P	P	P			
	MJC			P	P			T(PLM)
THU	MIC							
	D2H				T(SP)			
	D2S							
	D3	T(MG)	T(MG)	T(SP)			P(C)(SK)	P(C)(SK)
	PG I							
	PG III	T(SK)	T(SK)		T(SK)	T(SK)	T(MG)	
	XI	P	P	T(MG)	T(MG)			
FRI	XII	P	P	P	P			
	MJC			P	P			
	MIC					T(MG)	T(PLM)	
	D2H							
	D2S				T(SK)	T(SK)		
	D3	T(PLM)	T(PLM)				P(Z)(SP)	P(Z)(SP)
	PG I							
SAT	PG III	P(MG)	P(MG)		T(MG)	T(MG)	P(SK)	P(SK)
	XI			T(SK)	T(PLM)	T		
	XII							
	MJC							
	MIC			T(SK)				
	D2H							
	D2S			T(SP)	T(SP)			
	D3	P(MG)	P(MG)					
	PG I							
	PG III	T(SK)	T(SK)		T(SK)	T(SK)	P(MG)	P(MG)
	XI			T(MG)	P(PLM)	P(PLM)		
	XII							
	MJC							
	MIC					T(PLM)		
	D2H						P(SP)	P(SP)
	D2S						T(MG)	T(MG)
	D3	P(SK)	P(SK)					
	PG I							
	PG III	T(MG)	T(MG)		T(MG)		P(PLM)	P(PLM)
	XI							
	XII							

SK - 5
MG - 5th
PLM - 11, 12th
SP - 4

SK - 5
MG - 5
PLM - Inter
SP - 4

SK - 6
PLM - 2 + Inter
MG - 5 + Inter
SP - 2 + Inter

SK - 5
MG - 5
PLM - 4 + Inter
SP - 2 + Inter

SK - 5
MG - 5
PLM - 2 + Inter
SP - 2 + Inter

SK - 5
MG - 5
PLM - 3 + Inter
SP - 2 + Inter

T - Theory
P - Practical
SK - Dr Shalu kumari
MG - Dr Meenu Gupta
PLM - Dr Premilata Mehra
SP - Swati Priya

1/29.11.2023
Dr. Shalu Kumari
Head of the Dept
Dept. of Botany
J.D Women's College
Patna.

DEPARTMENT OF BOTANY, J. D WOMEN'S COLLEGE, PATNA

CLASS ROUTINE - 2024 (Jan - Jun)

DAY	CLASS	10:00-10:50AM	10:50-11:40AM	11:40-12:30PM	12:30-1:20PM	1:20-2:10PM	2:10-3:00PM	3:00-3:50PM	
MON	XI	P	P						
	MJC II			P	P				
	MIC II								
	D2H								
	D2S			P(MG)			P(SP)	T(SP)	SK - 5
	D3	T(SK)	T(SK)		P(MG)	T(SP)		P(SP)	MG - 5
	PG II	T(MG)	T(MG)						PLM - 1 + Inter
TUE	PG IV			T(SK)					SP - 4 + Inter
	XI	P	P		T(PLM)				
	MJC II			P	T(SK)	T(SK)	T(MG)		
	MIC II				P		T(SP)		
	D2H						P(SP)	P(SP)	SK - 5
	D2S			P(SK)	T(SP)				MG - 5
	D3	T(MG)	T(MG)		P(SK)				PLM - 1 + Inter
WED	PG II	T(SK)	T(SK)					T(SP)	SP - 5 + Inter
	PG IV			T(MG)	T(PLM)				
	XI	P	P		T(MG)	T(MG)	T(SK)		
	MJC II			P	P				
	MIC II					T(PLM)			SK - 5
	D2H					T(SP)			MG - 5
	D2S			T(SP)					PLM - 2 + Inter
THU	D3	T(MG)	T(MG)				P(C)SK	P(C)SK	SP - 2 + Inter
	PG II	T(SK)	T(SK)	T(MG)	T(MG)				
	PG IV				T(PLM)	T(SK)	T(MG)		
	XI	P	P	P	P				
	MJC II					T(MG)			SK - 5
	MIC II								MG - 5
	D2H				T(SK)	T(SK)			PLM - 4 + Inter
FRI	D2S						P(Z)(SP)	P(Z)(SP)	SP - 2 + Inter
	D3	T(PLM)	T(PLM)						
	PG II	P(MG)	P(MG)	T(SK)	T(PLM)	T(PLM)			
	PG IV				T(MG)	T(MG)	P(SK)	P(SK)	
	XI								
	MJC II			T(SK)					SK - 4
	MIC II								MG - 5
SAT	D2H			T(SP)	T(SP)				PLM - 3
	D2S								SP - 2
	D3	P(MG)	P(MG)						
	PG II	T(SK)	T(SK)	T(MG)	P(PLM)	P(PLM)			
	PG IV				T(SK)	T(PLM)	P(MG)	P(MG)	
	XI								
	MJC II					T(PLM)			SK - 5
	MIC II						P(SP)	P(SP)	MG - 5
	D2H						T(MG)	T(MG)	PLM - 4
	D2S								SP - 2
	D3	P(SK)	P(SK)						
	PG II	T(MG)	T(MG)		P(SK)	P(SK)			
	PG IV			T(MG)		T(SK)	P(PLM)	P(PLM)	

T-THEORY

P-PRACTICAL

SK-DR.SHELU KUMARI

MG- DR. MEENU GUPTA

PLM- DR. PREMIATA MEHTA

SP- SWATI PRIYA

HEAD OF THE DEPARTMENT

DEPARTMENT OF BOTANY

J.D WOMEN'S COLLEGE

PATNA

M
30.01.2024

J. D. WOMEN'S COLLEGE, BAILEY ROAD, PATNA
SCIENCE ROUTINE (Effective from 14/09/2022)

Day/Time	10.00-10.50 am	10.50-11.40am	11.40-12.30pm	12.30-1.20pm	1.20-2.10pm	2.10-3.00pm	3.00-3.50pm
MON DAY	D1				Bot/Math(Subs)	Hons.(Pract)	
	D2		Hons(Theory)	Hons(Theory)	Chem(Subs.)	Zoo/Phy(Subs.)	
	D3	Hons(Theory)	Hons(Theory)				
	I/III	Sem I (Theory)	Sem I (Lab)	Sem III (Theory)	Sem III (Theory)	Sem III (Theory)	Sem III (Theory)
TUES DAY	I/IV	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Bot/Phy(Subs.)	Chem(Subs.)	Sem IV/GE-1
	D1					Hons.(Pract)	
	D2		Hons(Theory)	Hons(Theory)	Bot/Phy(Subs.)	Zoo(Subs.)	Math(Subs.)
	D3	Hons(Theory)	Hons(Theory)				
WEDNES DAY	I/III	Sem I (Theory)	Sem I (Lab)	Sem I (Theory)	AECC-2	Sem III (Theory)	Sem III (Theory)
	I/IV	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)
	D1				Zoo/Math(Subs)	Hons(Theory)	Sem IV/DSE-1
	D2			Chem(Subs.)	Hons.(Pract)	SUBS.(Pract)-Chem(Z) Zoo(C) Phy(M)	Chem(Subs.)
THURS DAY	D3	Hons(Theory)	Hons(Theory)				
	I/III	Sem I (Theory)	Sem I (Theory)	Sem I (Theory)		Sem III (Theory)	Sem III (Theory)
	I/IV	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)
	D1					Hons(Theory)	Zoo/Phy(Subs)
FRI DAY	D2				Hons.(Pract)	SUBS.(Pract)-Chem(B)Bot(Z)Phy(C)	
	D3	Hons(Theory)	Hons(Theory)				
	I/III	Sem I (Theory)	Sem I (Theory)	Sem I (Theory)	AECC-2	Sem III (Theory)	Sem III (Lab)
	I/IV	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)
SATUR DAY	D1	SUBS.(Pract)-Chem(Z)Bot(C)Zoo(B)Phy(M)		HN(100/50)	Eng/Urdu (50)	Hons(Theory)	Hons(Theory)
	D2			Bot/Math(Subs.)	Eng/Urdu (50)	HN(100)	SUBS.(Pract)-Chem(D)Zoo(B)Bot(C)
	D3		Hons.(Pract)	GK & GS			
	I/III	Sem I (Theory)	Sem I (Theory)	Sem I (Theory)	Sem III (Lab)	Sem III (Theory)	Sem II (Theory)
SATUR DAY	I/IV	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Lab)
	D1	SUBS.(Pract)-Chem(D)Zoo(C)		Eng/Urdu (50)	Hindi (100/50)		SUBS.(Pract)-Chem(B)Bot(Z)Phy(C)
	D2			Hindi (100/50)	Eng/Urdu (50)		Hons(Theory)
	D3		Hons.(Pract)	GK & GS			Hons(Theory)
SATUR DAY	I/III	Sem I (Theory)	AECC-1	AECC-1	Sem III (Theory)	Sem III (Theory)	Sem III (Theory)
	I/IV	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Theory)	Sem II (Lab)
	D1						
	D2						

Note: for subsidiary paper: Gr(Z)-Zoology(H), Gr(B)-Botany(H), Gr(C)-Chemistry(H), Gr(M)-Math(H) and Gr(D)-Physics(H)+Math(H).

Prasanna

ROUTINE INCHARGE

M. S.
PRINCIPAL
16-09-2022

J.D. Women's Collegé, Patna-23

Class Routine (Arts) W.É.F

Period	1	2	3	4	5	6	7	8
Time	10:00 10:50	10:50 11:40	11:40 12:30	12:30 01:20	01:20 02:10	2:10 3:00	3:00 3:50	3:50 4:40
Class VI	PSY/M	HISTORY	PHILO	PSY/M	POL SC	SANSKRIT/URDU		
BA-I	HON'S	HOM'S	HISTORY (Sub)	PHILOSOPHY	ECONOMICS	HINDI	SOCIOLOGY	
BA-II	HISTORY (Sub)	HOM'S SCI (Sub)	HON'S	SOCIO (Sub)	PSY (Sub)	TUTORIAL	POL SC (Sub)	HISTORY (Sub)
BA-III								
MA	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV
XI	POL SC	SOCIOLOGY	HOM, SCI	HINDI	ECONOMICS	SANSKRIT/URDU	ENGLISH	
XI	ECONOMICS	ENG	HINDI	HOM'S SCI	SAN/U	PHILOSOPHY		
BA-I	HON'S	HOM'S	HISTORY (Sub)	HOM'S SCI (Sub)	SOCIO (Sub)	ECO (Sub)	POL SC (Sub)	PHILO (Sub)
BA-II	SOCIO (Sub)	PSY (Sub)	HON'S	HON'S	PHILO (Sub)	ECO (Sub)	HISTORY (Sub)	SOCIO (Sub)
BA-III								
MA	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV
XI	HISTORY	POL SC	PHILO	HINDI	ENG	PSY	HOM'S SCI	HISTORY
XI	SOCIOLOGY	PSY/M	POL SC	HOM'S SCI	SAN/U	HOM'S SCI	HISTORY	PRACTICAL
BA-I	HON'S	HON'S	POL SC (Sub)	HOM'S SCI (Sub)	LI	PSY	PSY/HISTORY/MA/HOM SC	PHILOSOPHY (Sub)
BA-II	LI	POL SC (Sub)	HON'S	HON'S	HINDI/ECO	TUTORIAL	HISTORY (Sub)	PHILOSOPHY (Sub)
BA-III								
MA	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV
XI	HOM'S SCI	SOCIOLOGY	HINDI	PHILOSOPHY	ENGLISH	PSY/HOM'S SCI	PRACTICAL	
XI	POL SC	ECONOMICS	SAN/U	ENG/LOI	PHILOSOPHY	HINDI (100) H		
BA-I	HON'S	HON'S	LI	POL SC (Sub)	HISTORY (Sub)	HINDI (100) H	SOCIO (Sub)	ECO (Sub)
BA-II	ECO (Sub)	POL SC (Sub)	HON'S	HON'S	LI	SOCIO (Sub)	PSY/HOM'S SCI (Sub)	PRACTICAL
BA-III								
MA	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV
XI	SOCIOLOGY	HISTORY	PSY/M	HINDI	ECONOMICS	ENGLISH		
XI	HISTORY	POL SC	SAN/U	PHILOSOPHY	HINDI	SOCIOLOGY		
BA-I	HON'S	HON'S	ECONOMICS (Sub)	HISTORY (Sub)	PHILO (Sub)	LI	HINDI (Sub)	ENGL I + (Sub)
BA-II	HOM'S SCI (Sub)	PSY/M (Sub)	HON'S	HON'S	ECO (Sub)	PHILO (Sub)	ENGLISH (Sub)	ECO (Sub)
BA-III								
MA	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV
XI	ECONOMICS	SOCIOLOGY	POL SC	PHILOSOPHY	PSY/M	SANSKRIT/URDU	HS	
XI	SOCIOLOGY	ENGLISH	HISTORY	PSY/M	ECONOMICS	PSY/HOM'S SCI	PRACTICAL	
BA-I	HON'S	HON'S	PSY (Sub)	POL SC (Sub)	HOM'S SCI (Sub)	PHILO (Sub)	ECO (Sub)	LI (Sub)
BA-II	LI	POL SC (Sub)	HON'S	HON'S	HISTORY (Sub)	HOM'S SCI (Sub)	ENGL/US (Sub)	HINDI (Sub)
BA-III								
MA	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM I/SEM II	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV	SEM II / SEM IV

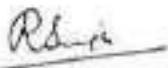
6/8
in charge

14/11/21

J. D. Women's College, Patna
Department of Management Studies

MBA Class Routine
w.e.f. 04/04/2022

TIME DAY	MBA	09:00 – 10:00 AM	10:00 – 11:00 AM	11:00 – 12:00 PM	12:30 – 01:30 PM	01:30 – 02:30 PM	02:30 – 03:30 PM
MONDAY	1 st Sem	ME [Anjali]	PPM [KKG]	HRM [Kumud]	AFA [Anjali]	SMDM [Trishna]	MM [NK]
TUESDAY	1 st Sem	ME [Kumud]	PPM [KKG]	HRM [Kumud]	AFA [Anjali]	SMDM [Trishna]	MM [NK]
WEDNESDAY	1 st Sem	ME [KKG]	PPM [KKG]	HRM [Kumud]	AFA [Anjali]	SMDM [Trishna]	MM [NK]
THURSDAY	1 st Sem	ME [Anjali]	PPM [KKG]	HRM [Kumud]	AFA [Anjali]	SMDM [Trishna]	MM [NK]
FRIDAY	1 st Sem	ME [Kumud]	PPM [KKG]	HRM [Kumud]	AFA [Anjali]	SMDM [Trishna]	MM [NK]
SATURDAY	1 st Sem	ME [KKG]	PPM [KKG]	HRM [Kumud]	AFA [Anjali]	SMDM [Trishna]	MM [NK]


Head of the Department

Principal

J. D. Women's College, Patna
Department of Computer Science

MCA Class Routine
w.e.f. 04/04/2022

Time Days	M.C.A.	8:00 – 9:00 AM	9:00 – 10:00 AM	10:00 – 11:00 AM	11:30 – 12:30 PM	12:30 – 1:30 PM	1:30 – 2:30 PM
Monday	1 st Sem.	E-Coern. [A. K.]	LSA [S. S.]	DM [N. K. Y.]	OS [S. P.]	C & DS [A. K.]	C & DS [A. K.]
Tuesday	1 st Sem.	E-Coern. [A. K.]	LSA [S. S.]	DM [N. K. Y.]	OS [S. P.]	C & DS [A. K.]	
Wednesday	1 st Sem.	E-Coern. [A. K.]	LSA [S. S.]	DM [N. K. Y.]	OS [S. P.]	OS [S. P.]	C & DS [A. K.]
Thursday	1 st Sem.	E-Coern. [A. K.]	LSA [S. S.]	DM [N. K. Y.]	DBMS [S. P.]	VB.Net [A. K.]	VB.Net [A. K.]
Friday	1 st Sem.	E-Coern. [A. K.]	LSA [S. S.]	DM [N. K. Y.]	DBMS [S. P.]	VB.Net [A. K.]	
Saturday	1 st Sem.	E-Coern. [A. K.]	LSA [S. S.]	DM [N. K. Y.]	DBMS [S. P.]	DBMS [S. P.]	VB.Net [A. K.]


Head of the Department

Principal

J. D. Women's College, Patna

Department of Management Studies

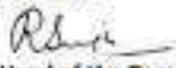
MBA Class Routine

w.e.f. 04/12/2021

TIME DAY	MBA	09:00 – 10:00 AM	10:00 – 11:00 AM	11:00 – 12:00 PM	12:30 – 01:30 PM	01:30 – 02:30 PM	02:30 – 03:30 PM
MONDAY	2 nd Sem	MAC [Anjali]	PM [KKG]	BRM [Kumud]	FM [Anjali]	OR [Trishna]	Extra Activity [NK]
	3 rd Sem [HR]		Extra Activity [Kumud]	LELI [KKG]	LAB [AK]	SM [NK]	
	3 rd Sem [FM]		SAPM [Anjali]	SAPM [Anjali]			CTPM [AK]
TUESDAY	2 nd Sem	MAC [Anjali]	PM [KKG]	BRM [Kumud]	FM [Anjali]	Extra Activity [Trishna]	OB [NK]
	3 rd Sem [HR]		IR [Kumud]	LELI [KKG]	LAB [AK]	SM [NK]	
	3 rd Sem [FM]		Extra Activity [Anjali]	SAPM [Anjali]			CTPM [AK]
WEDNESDAY	2 nd Sem	MAC [Anjali]	PM [KKG]	Extra Activity [Kumud]	FM [Anjali]	OR [Trishna]	OB [NK]
	3 rd Sem [HR]		IR [Kumud]	LELI [KKG]	Extra Activity [AK]	SM [NK]	
	3 rd Sem [FM]		SAPM [Anjali]	SAPM [Anjali]			CTPM [AK]
THURSDAY	2 nd Sem	MAC [Anjali]	PM [KKG]	Extra Activity [KKG]	BRM [Kumud]	OR [Trishna]	OB [NK]
	3 rd Sem [HR]		IR [Kumud]	IR [Kumud]	LAB [AK]	SM [NK]	Extra Activity [KKG]
	3 rd Sem [FM]		SAPM [Anjali]	SAPM [Anjali]			CTPM [AK]
FRIDAY	2 nd Sem	MAC [Anjali]	Extra Activity [KKG]	BRM [Kumud]	FM [KKG]	OR [Trishna]	OB [NK]
	3 rd Sem [HR]		IR [Kumud]	PS [Trishna]	LAB [AK]	Extra Activity [NK]	LELI [KKG]
	3 rd Sem [FM]		SAPM [Anjali]				CTPM [AK]
SATURDAY	2 nd Sem	Extra Activity [Anjali]	PM [KKG]	BRM [Kumud]	FM [KKG]	OR [Trishna]	OB [NK]
	3 rd Sem [HR]		IR [Kumud]	PS [Trishna]	LAB [AK]	SM [NK]	LELI [KKG]
	3 rd Sem [FM]		SAPM [Anjali]				CTPM [AK]

Extra Activity – Case Studies / Presentation / Quiz / GD etc.

Date: 02/12/2021


Head of the Department

J. D. WOMEN'S COLLEGE, PATNA

DEPARTMENT OF COMPUTER SCIENCE

MCA CLASS ROUTINE

W. E. F. 15/07/2021

Time Days	M.C.A.	8:00 – 9:00 AM	9:00 – 10:00 AM	10:00 – 11:00 AM	11:30 – 12:30 PM	12:30 – 1:30 PM	1:30 – 2:30 PM	2:30 – 3:30 PM
Monday	1 st Sem.		DLCD [S.S.]	DM [N.K.Y.]	IT [S.P.]	C & DS [A.K.]	Library	
	3 rd Sem.		OT [A.K.]	Adv. Java [S.J.]	PDC [Ajit]	DC&CN [S.P.]	DBMS [A.K.]	
	5 th Sem.	AI [S.S.]	DM&DW [S.J.]	CSA [S.P.]	Visual Prog. [A.K.]	D&AA [Ajit]		
Tuesday	1 st Sem.		DLCD [S.S.]	DM [N.K.Y.]	IT [S.P.]	C & DS [A.K.]		
	3 rd Sem.			Adv. Java [S.J.]	DBMS [A.K.]	DC&CN [S.P.]	PDC [Ajit]	Library
	5 th Sem.	AI [S.S.]	DM&DW [S.J.]	CSA [S.P.]	Visual Prog. Lab [A.K.]	D&AA [Ajit]	Visual Prog. [A.K.]	
Wednesday	1 st Sem.		DLCD [S.S.]	DM [N.K.Y.]	IT [S.P.]	C & DS [A.K.]	Library	
	3 rd Sem.		OT [A.K.]	Adv. Java [S.J.]	DBMS [A.K.]	DC&CN [S.P.]	PDC [Ajit]	
	5 th Sem.	AI [S.S.]	DM&DW [S.J.]	CSA [S.P.]	Library	D&AA [Ajit]	Visual Prog. [A.K.]	
Thursday	1 st Sem.		DLCD [S.S.]	DM [N.K.Y.]	IT [S.P.]	C & DS [A.K.]		
	3 rd Sem.			Adv. Java [S.J.]	PDC [Ajit]	DC&CN [S.P.]	DBMS [A.K.]	Library
	5 th Sem.	AI [S.S.]	DM&DW [S.J.]	CSA [S.P.]	Visual Prog. [A.K.]	D&AA [Ajit]		
Friday	1 st Sem.		DLCD [S.S.]	DM [N.K.Y.]	IT [S.P.]	C & DS [A.K.]	Library	
	3 rd Sem.		OT [A.K.]	Adv. Java [S.J.]	PDC [Ajit]	DC&CN [S.P.]	DBMS [A.K.]	
	5 th Sem.	AI [S.S.]	DM&DW [S.J.]	CSA [S.P.]	Visual Prog. [A.K.]	D&AA [Ajit]		
Saturday	1 st Sem.		DLCD [S.S.]	DM [N.K.Y.]	IT [S.P.]	C & DS [A.K.]		
	3 rd Sem.			Adv. Java [S.J.]	DBMS [A.K.]	DC&CN [S.P.]	PDC [Ajit]	Library
	5 th Sem.	AI [S.S.]	DM&DW [S.J.]	CSA [S.P.]	Visual Prog. Lab [A.K.]	D&AA [Ajit]	Visual Prog. [A.K.]	

Head of the Department

Director

J. D. Women's College, Patna

~~BG/PG~~ Department of ~~Philosophy~~ **ZOOLOGY**

Internal Assessment

Paper CC/AECC CC-1 Semester 1 Session 23-25

Sl. No.	Name of Student	Roll No.	Written Test / Viva		Assignment 5 Marks	Viva / Seminar 5 Marks	Regularity / Conduct (5+0 Marks)	Total
			Mid Test	Mid Test				
			7 V ₂ marks	7 V ₂ marks		5 Marks		
		2120891070001	6	6	4	3	4	23
		70002	7	7	4	5	4	27
		70003	7	7	4	5	4	27
		70004	5	4	3	3	3	18
		70005	6	6	4	4	4	24
		70006	6	6	4	4	4	24
		70007	7	6	4	4	4	25
		70008	5	5	3	3	3	19
		70009	5	5	3	3	3	19
		70010	6	6	3	3	4	22
		70011	5	5	3	3	3	19
		70012	6	5	3	3	3	19
		70013	5	5	3	3	3	19
		70014	6	6	4	3	4	23
		70015	6	6	4	4	3	23
		70016	5	5	3	3	3	19
		70017	5	5	3	3	3	19
		70018	6	6	4	4	4	24
		70019	6	6	4	4	4	24
		70020	6	6	4	4	3	23
		70021	7	7	4	5	4	27
		70022	6	6	4	4	4	24
		70023	6	6	4	4	3	24
		70024	5	4	3	3	3	18
		70025	6	6	4	4	3	23

J. D. Women's College, Patna

UG/PG Department of ~~Philosophy~~ **ZOOLOGY**

Internal Assessment

Paper CC/AECC CC-2 Semester 1 Session 23-25

Sl. No.	Name of Student	Roll No.	Written Test / Viva		Assignment 5 Marks	Viva / Seminar 5 Marks	Regularity / Conduct (5+5 Marks)	Total
			Mid Test	Mid Test				
			7 1/2 marks	7 1/2 marks				
		2420891070001	7	6	4	4 1/2	4 1/2	26
		70002	7	6	5	4	5	27
		70003	7	6	5	4	5	27
		70004	5	4	3	3	3	18
		70005	5	5	4	3 1/2	4 1/2	22
		70006	6	6	3	4	3	22
		70007	6	6	4	2 1/2	3 1/2	20
		70008	5	5	3	3	3	20
		70009	5	5	3	4	3	20
		70010	6	5	3	3	3	20
		70011	6	5	5	4	4	24
		70012	6	6	3	3	3	21
		70013	5	5	3	4	2 1/2	20
		70014	6	5	3	3	4	21
		70015	6	6	2	3 1/2	3 1/2	21
		70016	5	4	4	4	4	21
		70017	6	6	5	4	4	25
		70018	7	6	5	4	4	26
		70019	6	5	5	4	5	26
		70020	6	6	4	3	2 1/2 1 1/2	22
		70021	5	4	5	5	4	23
		70022	6	6	3	4	3 1/2	23
		70023	6	5	5	4 1/2	3 1/2	24
		70024	5	4	3	3	3	18
		70025	6	5	4	4 1/2	2 1/2	22

J. D. Women's College, Patna

~~B.A. / PG Department of Philosophy~~ ZOOLOGY

Internal Assessment

Paper CC/AECC CC-3 Semester..... 1 Session 23-25

SL. No	Name of Student	Roll No.	Written Test / Viva		Assignment 5 Marks	Viva / Seminar	Regularity / Conduct (5+0 Marks)	Total
			Mid Test	Mid Test		5 Marks		
			7 1/2 marks	7 1/2 marks				
		2420891670001	6	6	4	4	4	24
		70002	7	6	4	5	4	26
		70003	7	6	4	4+1	4	26
		70004	5	4	3	3	3	18
		70005	5	5	3	3+1	3	20
		70006	6	6	4	4	4	24
		70007	6	6	4	4	4	24
		70008	5	5	3	3+1	3	20
		70009	5	4	4	3+1	3	20
		70010	6	5	4	3	4	22
		70011	6	5	4	3	4	21
		70012	6	6	4	4	4	24
		70013	5	5	3	3+1	3	20
		70014	6	5	4	3	4	22
		70015	6	6	4	4	4	24
		70016	5	4	3	3+1	4	20
		70017	6	6	4	4	4	24
		70018	7	6	4	5	4	26
		70019	6	5	4	3	4	22
		70020	6	6	4	4	4	21
		70021	5	4	3	3+1	4	20
		70022	6	6	4	4	4	24
		70023	6	5	3	4	3	21
		70024	5	4	3	3	3	18
		70025	6	5	3	4	3	21

J. D. Women's College, Patna

UG/PG Department of ~~Philosophy~~ **ZOOLOGY**
Internal Assessment

Paper CC/AECC CC-4 Semester..... 1 Session 23-25

Sl. No.	Name of Student	Roll No.	Written Test / Viva		Assignment 5 Marks	Viva / Seminar 5 Marks	Regularity / Conduct (5+0 Marks)	Total
			Mid Test	Mid Test				
			7 1/2 marks	7 1/2 marks				
		242089 1070001	6	5	4	3	3	21
		70002	7	6	4	5	4	26
		70003	6	6	4	4+1	4+1	26
		70004	5	4	3	3	3	18
		70005	6	5	4	3	4	20
		70006	5	5	3+1	3	3	20
		70007	5	5	3	3+1	3	20
		70008	5	5	3	3+1	3	20
		70009	5	5	3	3+1	3	20
		70010	5	5	3	3	3+1	20
		70011	6	5	3	4	3	21
		70012	5	5	3	3+1	3	20
		70013	5	5	3	3+1	3	20
		70014	5	5	3	3+1	3	20
		70015	6	5	3	4	3	21
		70016	5	5	3	3	4	20
		70017	5	5	3+1	3	3	20
		70018	5	5	3	3	4	20
		70019	5	5	3	3	4	20
		70020	5	5	3	3+1	3	20
		70021	5	5	3	4	3	20
		70022	5	5	3	3+1	3	20
		70023	6	5	3	4	3	21
		70024	5	4	3	3	3	18
		70025	6	6	4	4	4	24

J. D. Women's College, Patna

UG/PG Department of ~~Philosophy~~ **ZOOLOGY**
Internal Assessment

Paper CC/AECC AECC-1 Semester 1 Session 23-25

Sl. No	Name of Student	Roll No.	Written Test / Viva		Assignment 5 Marks 10	Viva / Seminar 5 Marks	Regularity / Conduct (5+10 Marks)	Total 50
			Mid Test	Mid Test				
			15 marks	15 marks				
		2420891070001	11	10	9		8	38
		70002	12	12	9		9	42
		70003	12	12	9		9	42
		70004	10	10	7		5	32
		70005	11	11	8		8	38
		70006	11	11	8		9	39
		70007	11	11	8		8	38
		70008	11	11	9		8	39
		70009	11	10	8		8	37
		70010	10	10	8		8	36
		70011	11	11	8		8	38
		70012	11	10	8		8	37
		70013	11	11	8		8	38
		70014	11	11	8		8	38
		70015	11	10	7		8	36
		70016	11	11	8		8	38
		70017	11	11	8		8	38
		70018	11	10	8		7	36
		70019	11	10	8		7	36
		70020	11	10	7		8	36
		70021	10	10	6		5	31
		70022	11	11	8		8	38
		70023	12	10	8		7	36
		70024	10	10	7		5	32
		70025	11	11	8		7	37

NOTICE

DATE 12.08.2023

INTERNAL EXAM SCHEDULE P.G SEM III

DEPARTMENT OF ZOOLOGY

J.D WOMEN'S COLLEGE, PATNA

DATE	TIMING	PAPER	ROLL NO
17.08.2023	10:30am to 11:30am	CC -10	1-30
	12 pm to 1 pm	CC -11	1-30
	1:30 pm to 2:30 pm	CC -12	1-30
18.08.2023	10:30am to 11:30am	CC- 13	1-30
	12pm to 2 pm	CC -14 (PRAC)	1-30
	2:30 to 4 pm	AECC-2	1-30

1. Students must be in there college uniform and Id card.
2. Bring your admit card.
3. Carry your own hand sanitizer and face mask.
4. PRACTICAL RECORD FILE AND PROJECT ON DATE OF PRACTICAL EXAM.

Shushma
19.8.23
HEAD OF DEPT

ZOOLOGY

SEMESTER - I

Core Course (CC- 1): Functional Biology of Invertebrates and Chordates

Full Marks - 70 - Dr. Shushma

Time: 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five long questions (three to be answered) of 10 marks each.

Unit - I

- 1.1 Organization of coelom and its significance
- 1.2 Patterns of feeding and digestion in invertebrates
- 1.3 Invertebrate larvae: Types and significance

Unit - II

- 2.1 Respiratory pigments in different phylogenetic groups
- 2.2 Organs of Respiration in Invertebrates: Gills, Lungs and Trachea
- 2.3 Mechanism of Respiration in Invertebrates

Unit - III

- 3.1 Organs of respiration in vertebrates: Gills, ARO and Lungs
- 3.2 Principles of gaseous exchange and Fick's modified equation
- 3.3 Transport of gases in blood and body fluid
- 3.4 Regulation of respiration (Neural and chemical control)
- 3.5 Respiratory adaptations at higher altitude and in diving mammals

Unit - IV

- 4.1 Patterns of nitrogenous excretion in different phylogenetic groups
- 4.2 Organs of excretion: Coelomoducts, nephridia, malpighian tubules and kidney
- 4.3 Mechanism of osmoregulation and excretion in aquatic (freshwater and marine) and terrestrial animals
- 4.4 Mechanism of acid-base balance

Unit - V

- 5.1 Thermoregulation in vertebrates
- 5.2 Mechanism of energetic of muscle contraction (Skeletal)
- 5.3 Physiology of electrical and synaptical transmitters in neurons
- 5.4 Neurotransmitters and their functions
- 5.5 Acoustico-lateral system and electroreception in aquatic vertebrates

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SEMESTER – I

Core Course (CC- 2): Molecular Cell Biology : DA Shushma
Time: 3 hrs

Full Marks – 70

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five long questions (three to be answered) of 10 marks each.

Unit I:

(A) Bio membrane

- 1.1 Molecular composition, arrangement and functional consequences
- 1.2 Models of bio-membrane
- 1.3 Transport across bio-membrane: diffusion, active transport and membrane pumps (P-type pump, V-type pump and ABC transporter)
- 1.4 Cotransport by symporters and antiporters

(B) Cytoskeleton

- 1.5 Microtubules and microfilaments: Structure and dynamics
- 1.6 Role of Kinesin and Dynein in intracellular transport
- 1.7 Axonal transport and cell movement (with respect to non-muscle motility)

Unit II: DNA replication

- 2.1 Outline of prokaryotic replication
- 2.2 Replication features of single stranded phages
- 2.3 Mechanism and machinery of replication in eukaryotes
- 2.4 DNA damage and repair mechanisms

Unit III: Transcription

- 3.1 Outline mechanism of prokaryotic transcription
- 3.2 Organization of eukaryotic transcription machinery
- 3.3 General and specific transcription factors
- 3.4 Regulatory elements & DNA binding domains of transcription apparatus
- 3.5 Processing of primary transcript & RNA editing in eukaryotes

Unit IV: Translation

- 4.1 Genetic code: Codon assignment and features
- 4.2 Outline of Prokaryotic translation
- 4.3 Eukaryotes translation: machinery (Ribosome & t RNA)
- 4.4 Eukaryotes translation: mechanism (Initiation, elongation and termination)

Unit V: Intra cellular protein trafficking:

- 5.1 Targeting proteins to ER: Signal hypothesis
- 5.2 Co- and post – translational modifications of proteins
- 5.3 Trafficking mechanisms:
 - (a) Vesicular transport
 - (b) Protein sorting
 - (c) Endocytosis and exocytosis

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DA Shushma
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SEMESTER – I

Core Course (CC- 3): Genetics : DA. Shushma

Full Marks – 70

Time: 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five long questions (three to be answered) of 10 marks each.

Unit I: Organization of Chromosomes

- 1.1 Organization of prokaryotic chromosomes
- 1.2 Organization of eukaryotic chromosome: Nucleosome as functional particle, 30 nm chromatin fibre, higher order structure of chromatin
- 1.3 Organization of centromere and kinetochore, Organization of telomere and its maintenance
- 1.4 Heterochromatin: Types, organization, formation and significance
- 1.5 Structural organization and functional significance of Polytene and Lampbrush chromosomes.

Unit II: Microbial genetics

- 2.1 Transformation, conjugation, transduction and sex-duction in bacteria
- 2.2 Construction of linkage map in bacteria
- 2.3 Molecular mechanism of recombination

Unit III: Cell cycle

- 3.1 Stages and check points in cell cycle
- 3.2 Genetics of cell cycle regulation: Role of cyclins and CDKs
- 3.3 Molecular basis of cellular check points

Unit IV: Sex determination and dosage compensation

- 4.1 Genetic and Molecular basis of sex determination in *Caenorhabditis elegans*, *Drosophila* & human
- 4.2 Genetic basis of dosage compensation in *Caenorhabditis elegans*, *Drosophila* & mammals

Unit V: Techniques & Methods in genetics

- 5.1 DNA sequencing: Base destruction method, chain termination method and automated sequencing, pyro- sequencing and whole genome short-gun sequencing.
- 5.2 DNA amplification: Polymerase chain reaction, its application and limitations.
- 5.3 DNA finger printing: VNTR profiling, STR profiling (Autosomal & Y Chromosome), mitochondrial DNA profiling and SNP profiling
- 5.4 Genome expression analysis: Southern, Northern & Western blotting, Reverse Transcription PCR, DNA micro array.

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SEMESTER - I

Core Course (CC- 4) Practical

: Dr. Shuchma, Vijay Kishor
Full Marks - 70

1st Sitting

1. Squash preparation using any of the following: 10

- (a) *Chironomus/Drosophila* larvae for polytene chromosomes
- (b) Onion root tip for mitosis and mitotic index
- (c) Grasshopper testes for meiosis and related features

2. Experimental demonstration (any one of the following): 10

- (a) Enumeration of RBC
- (B) Enumeration of WBC (TC and DC)
- (C) Preparation of a histological slide of the given paraffin section/whole mount of an invertebrate larva 05

3. Identification and comments upon spots (cytological slides: Nos. 02) 05

2nd Sitting

4. Identification and comments upon spots (invertebrate slide-03, vertebrate slide-02) 10

5. Genetics (any of the following) 10

- (a) Solving problems on Mendelian principles and sex-linked inheritance
- (b) Preparation of linkage map based on data from *Drosophila* crosses and tetrad analysis in *Neurospora*
- (c) Pedigree analysis in human

6. Class records, charts/ models & field collection 10

7. Viva-voce 10

Dr. Shuchma
12.6.18

Vijay Kishor
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SEMESTER – II

Core Course (CC- 5): Environmental Science

: DA. Shushma

Full Marks – 70

Time : 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five long questions (three to be answered) of 10 marks each.

Unit I: Concept and Dynamics of ecosystem

1.1 Abiotic factors and Biotic factors.

1.2 Energy flow

(a) Lindemann's rule of trophic dynamics

(b) Energy flow models

1.3 Biogeochemical cycles: Nitrogen, Carbon, Sulphur and Phosphorous cycle

1.4 Hydrological cycles

Unit II: Principles pertaining to limiting factors

2.1 Liebig's Law of minimum, Shelford's Law of tolerance

2.2 Concept & Law of limiting factors

2.3 Factors compensation and ecotypes

Unit III: Population Growth, Predation and Regulation

3.1 Demography: Life tables, Generation time, Net reproductive rate, Reproductive value

3.2 Population growth: Exponential growth, Verhulst-Pearl logistic growth model,

3.3 Population regulation extrinsic and intrinsic mechanisms

3.4 Concept of niche, niche width and overlap, fundamental and realized niche, resource partitioning character displacement

Unit IV: Global Environmental Issues

4.1 Climate Change

4.2 Carbon Footprint

4.3 Water Security – conservation of surface and ground water

4.4 wildlife conservation

(a) Causes of extinction

(b) National and International efforts for conservation (CITES, IUCN, CBD)

(c) National parks and sanctuaries

(d) Biosphere reserves

(e) Wildlife protection Acts

Unit V: Pollution Biology

5.1 Pollutants, their sources and classification

5.2 Causes, effects and control of Water and Air Pollution

5.3 Biomagnification and Eutrophication

5.4 Thermal and Radioactive pollution

5.5 Emerging pollutants: POPs, Pharmaceuticals

5.6 Bio-indicators as index of pollution and their significance

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SEMESTER - II

Core Course (CC- 6) Bio-instrumentation & Biostatistics : Dr. Shuchma Full Marks - 70
Time : 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five long questions (three to be answered) of 10 marks each.

Unit - I

- 1.1 Principles and uses of analytical instruments - pH meter, colorimeter, Spectrophotometer, Ultra-centrifuge.
- 1.2 Microscopy - Principles of light, Transmission Electron, Scanning Electron, Fluorescence, Phase-contrast and Confocal Microscopes Photomicrography.

Unit - II

(A) Separation techniques

1. Electrophoresis: SDS PAGE, Agarose gel electrophoresis
2. Chromatography: Column, GLC, HPLC
3. Organelle separation by centrifugation
4. Cell separation by flow cytometry and density gradient centrifugation

(B) Immunological techniques

1. Radio- immunoassay (RIA)
2. Enzyme-linked Immunosorbent assay (ELISA)

Unit - III

- 4.1 Basic concepts in Biostatistics (sampling design, data collection and scaling techniques)
- 4.2 Mean: Arithmetic, Geometric & Harmonic Mean
- 4.2 Standard Deviation
- 4.3 Standard Error
- 4.4 Analysis of Variance (ANOVA)

Unit-IV

1. Correlation (Karl Pearson and Rank's correlation)
2. Regression

Unit -V

- 1.1 Rules of probability
- 1.2 Binomial probability distribution
- 1.3 Poisson probability distribution
- 1.4 Normal probability distributions
- 5.5 Test of Significance
 - (a) Chi-square test
 - (b) Student's t-test

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SEMESTER – II

Core Course (CC- 7): Biochemistry : Dr. Shushma
Time : 3 hrs

Full Marks – 70

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five long questions (three to be answered) of 10 marks each.

Unit-I: Bioenergetics

- 1.1 Laws of thermodynamics, internal energy, enthalpy, entropy
- 1.2 Concept of free energy, redox potential, energy rich compounds
- 1.3 Mitochondrial electron transport chain and oxidative phosphorylation

Unit-II: Biochemistry of Carbohydrates

- 2.1 Monosaccharides and Disaccharides, Types and properties
- 2.2 Polysaccharides: Homopolysaccharide and Heteropolysaccharide
- 2.3 Glycolysis, HMP shunt, Glyconeogenesis and Glycogenolysis

Unit-III: Biochemistry of proteins and lipids

- 3.1 Primary, secondary, tertiary, quaternary and domain structures
- 3.2 Stabilizing forces in protein structure
- 3.3 Peptide conformation (Ramachandran plot, helices, turns and sheets)
- 3.4 Biosynthesis of Urea
- 3.5 Free fatty acids: Synthesis and importance
- 3.6 β -Oxidation of long chain fatty acids

Unit – IV: Enzyme Biochemistry

- 4.1 Enzyme: Classification and nomenclature
- 4.2 Mechanism of enzyme action
- 4.3 Kinetics of enzyme catalyzed reaction
- 4.4 Non-genetic Regulation of enzyme activity:
 - (a) Feedback inhibition
 - (b) Allosteric inhibition
- 4.5 Free radicals, Antioxidants and detoxification

Unit – V: Principles of Histology and Histochemistry

- 5.1 General principles of fixation and types of fixatives
- 5.2 General principles of staining and types of dyes
- 5.3 General principles of histochemistry:
 - (a) Carbohydrate
 - (b) Protein
 - (c) Lipid
 - (d) Nucleic acids
 - (e) Enzymes

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SEMESTER – II

Core Course (CC- 8): Biosystematics and Evolution : Dr. Shukla Full Marks – 70
Time : 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five questions (three to be answered) of 10 marks each.

Unit 1: Biosystematic

1. Definition & basic concept of Biosystematics and taxonomy, its importance and application in biology.
2. Hierarchy of categories, outline of classification of animals, important criteria used for classification up to Classes in each phylum
3. Species concept : Biological and phylogenetic, sub - species and other infra-specific categories, evolutionary relationship among taxa
4. International code of Zoological nomenclature (ICZN): operative principles, and important rules, Zoological nomenclature and scientific names of various taxa
1. Trends in taxonomy : Chemo - taxonomy, cyto - taxonomy and molecular taxonomy

Unit 2: Pattern of genetic variation and natural selection

1. Genetic polymorphisms, variation in chromosome structure, protein structure and nucleotide sequences
2. Concept of Natural Selection (Darwinian and neo- Darwinian), mode of its operation: stabilizing, directional and disruptive modes of Natural Selection

Unit 3: Molecular evolution

1. Variation in the evolution of protein and DNA sequences
2. Molecular phylogenies
3. Rates of molecular evolution and molecular clock
4. Neutral theory of molecular evolution
5. Origin of new genes and evolution of multi gene family

Unit 4: Mechanism of speciation

1. Patterns and mechanisms of reproductive isolation and its role in evolution
2. Models of speciation : sympatric and allopatric

Unit 5: Population genetics

1. Concept of Gene pool, allele frequency and genotype frequency
2. Hardy-Weinberg principle of genetic equilibrium and its mathematical derivation
3. Detailed account of destabilizing forces of genetic equilibrium: Natural selection, Mutation, Migration, Meiotic drive, and Genetic Drift

Dr. Shukla
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SEMESTER - II

Core Course (CC- 9) Practical : Dr. Shushma, Vijay, Leisha Singh
First Sitting Full Marks - 70

1. Biochemical experiments (any one of the followings) 10
 - (a) Determination of salivary amylase activity
 - (b) Colorimetric estimation of glucose, urea, uric acid or albumen in a given sample
 - (c) Separation of amino acids by paper chromatography
 - (d) Biochemical detection of glucose, starch, protein or lipid in a given sample
2. Identify and comment upon the spots of evolutionary significance (any one of the following): 10
 - (a) Archaeopteryx
 - (b) Darwin's finches
 - (c) Serial homology in cephalothoracic appendages in prawn
 - (d) Homology vs Analogy
 - (e) Adaptive radiation in beaks of birds
3. Histochemistry; Histochemical demonstration involving the following reagents: 10
PAS, Alcian Blue, Sudan Black B, Sudan III/IV, Feulgen, Methyl green- Pyronin,
Mercury bromophenol or
Preparation of temporary mount of any two of the specimens of planktons

Second Sitting

4. Environmental studies (any one of the following) 10
 - (i) Measurement of pH
 - (ii) Estimation of dissolved O_2
 - (iii) Estimation of free CO_2
 - (iv) Estimation of carbonate & bicarbonate alkalinity
 - (v) Composition & assessment of the taxonomic diversity/biodiversity in a habitat (of grassland, arid & wetland)
 - (vi) Estimation of the total hardness
5. Biostatistics: 10
Standard deviation, standard error, correlation, regression, t-test
6. Class record 10
7. Viva-voce 10

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SEMESTER – III

Core Course (CC- 10): Vertebrate Immunology : DA- Shushma

Full Marks – 70

Time : 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five questions (three to be answered) of 10 marks each.

Unit 1: Innate and Acquired Immunology

1. Cell types of innate and adaptive immunity, Lymphocyte trafficking
2. Phagocytosis and inflammation
3. Humoral immunity: β cell activation and differentiation, primary and secondary humoral response
4. Cell mediated immunity: T - cell development and T-cell activation, CTL and NK cell mediated immunity

Unit 2: (A) Nature of Antigens

1. Antigenicity and immunogenicity, and the factors influencing it.
2. Characteristics of β and T cell epitopes and haptens
3. Super antigen and its role in T cell activation
4. Antigen processing and presentation
5. MHC complex

(B) Structure and functions of Antibodies

- (a) Gross and fine structure
- (b) Classes and sub-classes
- (c) Antibody mediated effector functions and monoclonal antibodies

Unit 3: (A) Antigen- antibody interaction and Complement system

1. Antibody affinity and antibody avidity
2. Precipitation reactions
3. Agglutination reactions
4. Complement System - activation pathway, biological function and complement deficiencies
5. ELISA

(B) Cytokines : Classification and function, Cytokines receptors.

Unit 4: Organization and expression of Ig genes

1. Organization of Ig genes
2. Generation of antibody diversity
3. BCR and Generation of T-cell receptor diversity

Unit 5: Immunology and Diseases

1. Hypersensitivity (Type I, II, III, IV).
2. Auto-Immunity
3. Immune responses to infectious agents - bacterial, viral and parasitic infection (Protozoa and Helminth parasites).
4. Immunodeficiencies

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SEMESTER – III

Core Course (CC- 11): Gamete and Developmental Biology : Dr. Shushma Full Marks – 70

Time : 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five long questions (three to be answered) of 10 marks each.

Unit-I: Gamete Biology

- 1.1 Cellular basis of spermatogenesis and Biochemistry of semen
- 1.2 Ovarian follicular growth and differentiation
- 1.3 Oogenesis and vitellogenesis
- 1.4 Ovulation and ovum transport
- 1.5 Molecular events during fertilization

Unit II: (A) Multiple ovulation and Embryo transfer technology

- 2.1 *In vitro* oocyte maturation
 - 2.2 Super ovulation
 - 2.3 *In vitro*-fertilization
- (B) Assisted Reproduction technologies
- 2.4 Collection and preservation of gametes
 - 2.5 ICST, GIFT & Immuno - contraception

Unit III: Basic concept of development

- 3.1 Potency, commitment, specification, induction, competence, determination and differentiation
- 3.2 Morphogenetic gradients, cell fate and cell lineages, genomic equivalence and cytoplasmic determinants.

Unit IV: Differentiation, morphogenesis and organogenesis

- 4.1 Cell differentiation: Role of cytoplasm and nucleus
- 4.2 Gene amplification and rearrangement during development
- 4.3 Axes and pattern formation in *Drosophila*.
- 4.4 Limb development and regeneration in vertebrates

Unit V: Stem cell Biology

- 5.1 Definition and characteristics of stem cell
- 5.2 Type of stem cell (embryonic, adult and cancer stem cell)
- 5.3 Nuclear reprogramming of induced pluripotent stem cell, test for pluripotency
- 5.4 Potential application of stem cells, therapeutic cloning

Dr. Shushma
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Dr. Shushma
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SEMESTER - III

Core Course (CC- 12): Vertebrate Endocrinology : DA. Shukla

Full

Marks - 70

Time : 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five questions (three to be answered) of 10 marks each.

Time: 3 hrs.

Unit- I

- 1.1 Aims and scope of endocrinology
- 1.2 Hormones as messengers
- 1.3 Chemical nature and gross features of hormones
- 1.4 Neuro-endocrine system and neurosecretion
- 1.5 Hypothalamic control of endocrine system

Unit- II

- 2.1 Hormones involved in reproduction
 - (a) Seasonal breeders
 - (b) Continuous breeders
- 2.2 Hormonal regulation of reproductive cycle
 - (a) Ovarian cycle
 - (b) Menstrual cycle
 - (c) Oestrus cycle

Unit-III

- 3.1 Biosynthesis of steroid hormones
- 3.2 Biosyntheses of amino acid derived hormones (T₄, Epinephrine)
- 3.3 Biosynthesis of simple peptide hormones. Pre and Prohormones.

Unit- IV Hormone Receptors:

- 4.1 β -adrenergic receptor
- 4.2 Insulin receptor
- 4.3 Steroid hormone receptor

Unit-V: General principles of hormone actions (signal transduction)

- 5.1 Second messenger concept [G proteins, Nucleotides (cAMP, cGMP), Calcium, Calmodulin, Phospholipids]
- 5.2 Lipid soluble hormones and intracellular receptor
- 5.3 Lipid insoluble hormone and intracellular signalling

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SEMESTER – III

Core Course (CC- 13): Animal Behaviour : DA Shushma

Full Marks – 70

Time : 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five questions (three to be answered) of 10 marks each.

Time: 3 hrs.

Unit-I: Basics of Animal Behavior

- 1.1 Ethology- Definition, Branches, Significance
- 1.2 Approaches and methods in the study of Behavior
- 1.3 Patterns of Behavior-
 - (a) Innate behavior- Kinases/ Taxes, Simple reflex, Comparison of reflex and complex behaviors, Instinct and, Motivation
 - (b) Learned behavior- Habituation, Imprinting, Conditioned reflex, Trial & error learning, Reasoning and Cognition

Unit II: Social Behavior

- 2.1 Social behavior of insects (Honey bees, Ants and termites)
- 2.2 Schooling in fish, Flocking in birds,
- 2.3 Social organization of Primates
- 2.4 Parental care in fishes
- 2.5 Altruism: Reciprocal altruism, Inclusive fitness, group selection, and Kin – selection

Unit. III: Reproductive Behavior

- 3.1 Evolution of sex and reproductive strategies
- 3.2 Mating system
- 3.3 Courtship & Parental Behaviors: Parental care and parental Investment

Unit IV. Biological Rhythms

- 4.1 Circadian, Circannual, Lunar, Tidal and Epicycles
- 4.2 Navigation including orientation
- 4.3 Migration of fishes and Birds

Unit V. Control of Behavior

- 5.1 Neural control of behaviour
- 5.2 Hormones and Behavior
- 5.3 Ecological aspects of behavior: Habitat selection, Optimal foraging theory, and Aggressive behavior

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SEMESTER - III

Core Course (CC- 14) Practical : DA - shushma , Vijay reishaa
Time : 6 hrs

Full marks - 70

1. Any one of the immunological experiments 10
 - (a) Determination of blood group using ABD antisera
 - (b) Preparation of blood film and identification of blood cells of immunological importance
 - (c) Hormonal assessment of T3/Testosterone/oestrogen by ELISA reader
2. Identify and comment upon the given spots 10
 - (a) Endocrinological slides-03
 - (b) Embryological slides -02
3. Prepare a permanent mount of chick embryo or 10
Identify and comment upon the exposed endocrine glands in a mammal
4. Comment upon the behavioural aspects of specimens provided 10
(any two)
 - (a) Parental care (Hippocampus, Cichilids, Alytes, Hyla, Ichthyophis)
 - (b) Caste system (Honey bee/termites/ants) and its significance
 - (c) Dance as means of communication in honey bees
5. Identification and comment upon the given embryonic stages 10
(any two)
6. Class record 10
7. Viva voce 10

Man
12.6.18

Shushma
12.6.18

Vijay
12.6.18

SEMESTER - IV

EC - 1C Elective paper : Environmental Biology : Dr. Shushma

Time : 3 hrs

Questions to be set in three parts representing all the five units. Part A will consist of 10 objective questions of 2 marks each. Part B will consist of five short questions (Four to be answered) of 5 marks each. Part C will consist of five long questions (three to be answered) of 10 marks each.

Full Marks - 70

Unit 1 : (A) Concept and dynamics of ecosystem

- 1.1 Biological productivity, primary production and method of its measurement
- 1.2 structure and function of major ecosystem's of the world (fresh water ecosystems, forest ecosystem, grassland, desert ecosystem)

(B) Limnology

- 1.3 Origin and types of lakes
- 1.4 Ecological zonations in lakes

Unit 2 : (A) Population ecology

- 2.1 Concept of meta-population, demes and dispersal, interdemec extinctions, age structured populations.
- 2.2 Stochastic and time lag models of population growth. Lotka-Volterra equation for competition and predation, functional and numerical responses.

(B) Community ecology & succession

- 2.3 Nature of communities, community structure and attributes
- 2.4 Levels of species diversity and its measurements
- 2.5 Influence of population interaction on communities, types, mechanisms
- 2.6 Changes involved in succession, concept of climax

Unit III: (A) Biodiversity

- 3.1 Importance, status, monitoring, documentation, threats and conservation of biological diversity.
- 3.2 Shannon-Weiner index, dominance index, Similarity index, Association index

(B) Wildlife Management

- 3.3 Principles of conservation
- 3.4 Major approaches to management, and Indian case studies on conservation/management strategy (project tiger, biosphere reserves)

Unit IV : (A) Pollution and environmental health

- 4.1 Global environmental problems, global warming, ozone depletion, acid rain, photochemical smog
- 4.2 Sources, hazards and control of air, water and solid waste pollution

(B) Ecotoxicology

- 4.3 Definition of toxicology
- 4.4 Toxic substances in the environment
- 4.5 Concept of dose response relationship

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12.6.18

- 4.6 Acute toxicity, chronic toxicity, lethal concentration, effective concentration
- 4.7 Bioaccumulation, biomagnification, median tolerance limits.

Unit V : (A) Environmental monitoring

- 5.1 Chemical and biological monitoring
- 5.2 Concept of indicator organisms and bio-monitoring of water quality
- 5.3 Concept of biotic and diversity indices.

(B) Bioremediation and Phytoremediation

- 5.4 Need and scope of bioremediation, environmental applications of bioremediation, future outlook
- 5.5 Phytoremediation- biotechnology of cleaning up the environment by plants

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RESEARCH AND INNOVATION

SEMESTER – IV

EC – 2C Elective paper (Practical): Environmental Biology : *Dr. Shushma*
Time : 6 hrs

Full Marks – 70

Ist sitting

- | | |
|--|----|
| 1. Qualitative and quantitative estimation of Zooplankton and Benthos | 10 |
| 2. Studies of soil fauna by Quadrant method | 05 |
| 3. Physico-chemical analysis of any one | 10 |
| (a) Water : DO, BOD, COD, Chloride, Carbonate and Bicarbonate alkalinity, Calcium and Magnesium hardness / Ca^{++} and Mg^{++} | |
| (b) Soil: pH, Chloride, Total alkalinity, Hardness, Water retention capacity of different types of soil. | |
| 4. Estimation of Nitrite, Sulphate, and Phosphate by Spectrophotometry. | 10 |

IInd sitting

- | | |
|---|----|
| 5. Spotting - Zooplankton, Zoo-macro-benthos, Nekton (2x5) | 10 |
| 7. Class Records | 05 |
| 8. Dissertation including Power Point Presentation and Viva | 20 |

B. Sc. Part - I:- ZOOLOGY (HONOURS)

Time: 3 Hours]

PAPER-IA (Non-Chordate) - Swafnil Kumari [Full Marks: 75

In all ten questions are to be set out of which number 1 and 2 shall consist of objective (1 x 15 marks) and short answers (3 x 5) requiring questions respectively and both shall span over the whole syllabus in the paper. Students would be required to answer five questions, of which question numbered 1 and 2 shall be compulsory.

- I. Bionomics general characters and classification (up to orders) of the following Phyla: Protozoa, Porifera, Cnidaria, Ctenophora, Platyhelminthes, Aschelminthes, Annelida, Arthropoda, Mollusca, Echinodermata and Hemichordate.
- Detailed study of the following types:**
1. **Protozoa:** Paramecium, Parasitic protozoans and their modes of infection, Polystomella (Elphidium).
2. **Porifera:** Sycon, Canal system in sponges, affinities of the phylum.
3. **Cnidaria:** Obelia, Aurelia, Sea anemone.
4. **Ctenophora:** General organization of Hormiphora, affinities of the phylum.
5. **Platyhelminthes:** Fasciola hepatica, Teania sodium and Planaria.
6. **Aschelminthes:** Ascaris lumbricoides, Wuchereria bancrofti.
7. **Annelida:** Pheretima posthuma, Leech, Nereis.
8. **Arthropoda:** Paloemon, Peripatus, Adaptive variations in insect mouth parts, Sacculina.
9. **Ectoprocta:** Bugula.
10. **Mollusca:** Unio, Pila, Sepia, Torsion and detorsion in Gastropoda.
11. **Echinodermata:** Larval forms in Echinoderms, water Vascular System in Echinoderm.

Time: 3 Hours]

PAPER-IIA - Dr. Shushma Kumari [Full Marks: 75
(Ecology, Animal Behaviors and Biometry)

- I. **Ecology:**
 1. Concept of Biosphere (Lithosphere, hydrosphere and atmosphere).
 2. Ecosystem: Definition, structure and function of typical ecosystem.
 3. Structure (Abiotic and Biotic) and function (energy flow, Biogeochemical cycles) of fresh water, grassland, desert and forest ecosystems.
 4. Community structure and its ecological succession.
 5. Pollution and its hazards (air, water and sound).
 6. Wild-life conservation: Types and measures, National Parks and Sanctuaries.
- II. **Animal Behaviour:**
 1. Scope of Ethology, Innate and learned behaviour.
 2. Social behavior in insects.
 3. Parental care in fishes and amphibia.
 4. Brooding, nesting and migratory behavior in birds.
 5. Concept of Biological clock.
- III. **Biometry:**

Scope and application of the following statistical method in Biology.

 1. Normal distribution and its attribution range, mode, median and arithmetic mean.
 2. Standard error, standard deviation, Simple test and Chi-square test.

PRACTICAL ZOOLOGY PART-I (HONOURS)

Time: 4 Hours]

PAPER-IB and IIB - *Dr. Shushma Kumari* [Full Marks: 50

10

1. Dissection:

Pheretima, Leech-Alimentary canal, Reproductive, Excretory and Nervous systems.
Palaemon - Alimentary canal, Nervous system.
Unio Pila and Sepia- Nervous system, organs of Pallial complex of Pila.

05

2. Permanent stained preparation of the following:

Paramoecium gemmules, Spicules, obelical colony, Nephridia and Ovary of
Pheretima Jaw of Leech, statocyst of prawn, osphradium, radulla and gill of pila of
unio, Glochidium larva, of crustace and Echinoderma, Pediceralia.

14

3. Spotting (Each of two marks):

(i) Museum specimens

- 02

(ii) Slides

- 04

(iii) Specimens relating animal behavior or parental care.

- 01

06

4. Ecology:

(i) Analysis of soil/pond biota.

(ii) Determination of dissolved oxygen and pH of different water samples.

(iii) Community structure of Grassland.

(iv) Moisture content of soil sample.

05

5. Biometry:

Calculation of the arithmetic mean and standard deviation of the samples provided.

05

6. Record and field work.

05

7. Viva.

PAPER-III (Theory) – *shalini swaraj*

In all ten questions are to be set out of which number 1 and 2 shall consist to objective

1 x 15marks and short answers (3 x 5) requiring question respectively and both shall over the whole syllabus in the paper. Student would be required to answer five questions of which question numbered 1 and 2 shall be compulsory.

1. Origin and evolution of chordates.
2. Binomics, General characters and classification of the chordates (upto order) of the following groups. Protochordata, Cyclostomata, Pisces, Amphibia, Reptilia, Aves & Mammalia.
3. Study of the following Types:
 - (a) **Urochordata** - General organisation and life cycle of Herdmania and their affinities
 - (b) **Cephalochordata** - Amphioxus.
 - (c) **Cyclostomata** - Petromyzon.
 - (d) **Fishes**- (i) Labeo, scoliodon
(ii) Distribution general organisation and affinities of Dipnoi; Accessory respiratory organs in fishes.
 - (e) **Amphibia**-(i) Origin and evolution of Amphibia; Neoteny.
 - (f) **Reptilia**- 1. Any Lizard
2. Biting and feeding Mechanism in Snakes.
 - (g) **Aves**- (i) Columba
(ii) Origin of Birds
(iii) Flight adaptations.
 - (h) **Mammals**-(i) Characters and distribution of Prototheria, Metatheria
(ii) General organisation of primates.

PAPER-IV - Dr. Shushma Kumari**Time: 3 Hours]****[Full Marks: 75****Comparative Anatomy:**

Study of the following organ systems in the vertebrate groups:

- (i) Integument; its derivatives and function.
- (ii) Gastrointestinal tract.
- (iii) Respiratory systems,
- (iv) Heart, Aortic arches.
- (v) Brain,
- (vi) Evolution and fate of kidney, urinogenital ducts, gonads,
- (vii) Evolution of chondro-Splanchno & osteocranium.

Embryology:

- (i) Gametogenesis, Fertilization and Parthenogenesis.
- (ii) Types of vertebrate eggs cleavages patterns,
- (iii) Development of Amphioxus (upto the formation of coelom),
- (iv) Development extra-embryonic membranes in chick,
- (v) Placenta in mammals its development types and functions,
- (vi) Organogenesis of Heart, Brain and Eye in chick embryo.

PRACTICAL ZOOLOGY PART-II HONOURS - Dr. Shushma Kumari

Time: 6 Hours]

PAPER-IIIB & VI B

[Full Marks: 50

10

1. Dissections.

- (i) **Scoliodon and any Bony fish** - Afferent and efferent branchial vessels :
(V, VII, IX, X) cranial nerves, Eye muscles and their nerve supply; Internal ear; Accessory respiratory organs.
- (ii) **Frog** - Cranial nerves (V, VII, IX, X).
- (iii) **Lizard** - Arterial and venous system.
- (iv) **Pigeon** - Arterial and venous systems, air sacs, flight (muscles with the origin and insertion to tendons).
- (v) **Mammals** Neck nerve, Urino-genital organs.

2. Mounting:

05

Velum and Oral hood of *Amphioxus*, Ampulla of *Lorenzini*, respiratory membrane of air, breathing-structures, scales of fishes, pecten and feathers, Mounting of chick embryo (24 & 48 hours).

3. Permanent stained Preparation of paraffin sections provided.

5

4. Spotting:

20

- (i) Museum specimens 2
- (ii) Slides Histology & Embryology 4
- (iii) Bones Limbs of Frog Girdles Skull Varanus
Vertebrate Fowl & Rabbit 4

5. Record and field work

5

6. Viva-voce

5

Time: 3 Hours]

Dr. Shushma Kumari **PAPER-V (Theory)**
[Full Marks: 100

In all ten questions are to be set out of which number 1 and 2 shall consist of objective (1 x 15 marks and short answers (3 x 5) requiring question respectively and both shall span over the whole syllabus in the paper. Students would be required to answer five questions, of which question number 1 and 2 shall be compulsory.

Biochemistry, Physiology & Endocrinology

Biochemistry:

- (i) Structure and classification of Amino Acids, Protein, Carbohydrate & fats.
- (ii) Metabolism of Carbohydrate Glycolysis, Glycogenesis and Krebs cycle.
- (iii) Beta-oxidation of fatty acids.
- (iv) Vitamins -Definition, Types and functions.
- (v) pH, buffers and electrolyte dissociation.
- (vi) Enzymes classification and mechanism of action

Physiology (Mammals):

1. Physiology of digestion, Respiration (Ventilation of lungs and transport of gases), Excretion & Osmoregulation and circulation
2. Mechanism of thermoregulation.
3. Acid base balance.
4. Physiology of Vision and Hearing.

Endocrinology (Mammal):

1. Histo-physiology of the various endocrine glands.
2. Chemical nature and physiological actions of the hormones secreted by Adenohypophysis, Neurohypophysis Adrenal, thyroid, Islets of Langerhans and Gonads.

Time: 3 Hours]

Swapnil Kumar **PAPER-VI (Theory)**

[Full Marks: 100

In all ten questions are to be set out of which number 1 and 2 shall consist of objective (1 x 15 marks and short answers (3 x 5) requiring question respectively and both shall span over the whole syllabus in the paper. Students would be required to answer five questions, of which question number 1 and 2 shall be compulsory.

(Cell Biology, Genetics and Economic Zoology)

Cell Biology:

1. Ultrastructure & function of the following cell organelles-Plasma membrane, mitochondria & golgi complex.
2. Ribosome & Protein synthesis.
3. Chromosomes & Giant chromosomes.
4. Active transport across cell membrane.

Genetics:

- (i) Mendelian Inheritance
- (ii) Linkage and crossing over.
- (iii) Structure and Replication of DNA, transcription, genetic code and translation.
- (iv) Chromosomal aberrations the genetic and cytological manifestations and significance.
- (v) Gene mutation and molecular mechanism of its origin.
- (vi) Extra-nuclear genetic system.
- (vii) Eugenics.

Economic Zoology:

- (i) Lac Culture
- (ii) Sericulture
- (iii) Apiculture
- (iv) Pisciculture

- (v) Elementary idea of the common pests of paddy, wheat, sugarcane and vegetables, their control.
- (vi) Vectors of kala-azar, malaria and filaria, their biology mode of infection, prevention and control.

Time: 3 Hours]

Shalini Suman **PAPER-VII (Theory)**

[Full Marks: 100

In all ten questions are to be set out of which number 1 and 2 shall consist of objective (1 x 15 marks) and short answers (3 x 5) requiring question respectively and both shall span over the whole syllabus in the paper. Students would be required to answer five questions, of which question number 1 and 2 shall be compulsory.

(Evolution, Zoogeography & Paleozoology)**Evolution:**

- (i) Sources of hereditary variations and their role in evolution.
- (ii) Principles of evolution; Lamarckism, Neo-Lamarckism, Darwinism & Neo-Darwinism.
- (iii) Isolating mechanisms and their role in evolution.
- (iv) Mimicry and colouration.
- (v) Fossil history of Horse & Man.
- (vi) Introduction to population genetics and Hardy-Weinberg Law

Zoogeography and Paleozoology:

- (i) Zoogeographical realms of the world, their boundaries and climatic peculiarities.
- (ii) Characteristic & Peculiar fauna of Oriental Ethiopian and Australian regions.
- (iii) Characteristics of Island fauna.
- (iv) Theories & Principles pertaining to animal distribution.
- (v) Different geological eras of the world, their duration and climatic conditions.
- (vi) Faunistic Peculiarities of Paleozoic, Mesozoic and Cenozoic eras.
- (vii) fossils, their mode of formation & age determination.

PRACTICAL**PAPER-VIII***Dr. Shreshma Kumari*

Time: 6 Hours]

[Full Marks: 50

(Biochemistry, Physiology & Endocrinology)**1. Biochemistry:**

10

- 1. Benedict's test for reducing sugar.
- 2. Molisch's test.
- 3. Iodine test for starch and glycogen.
- 4. Ninhydrin reaction for glycine / tyrosine / tryptophan.
- 5. Millon's reaction for glycine / tyrosine / phenylalanine.

2. Physiology:

7+7 = 14

Experiments to be performed in frog/ bird/ mammal (Two experiments each of 7 marks)-7 + 7 marks:

- 1. Enumeration of total RBC.
- 2. Estimation of haemoglobine (gm/ 100 ml) in blood.
- 3. Determination of ESR of blood.
- 4. Determination of bleeding and clotting time.
- 5. Determination of O₂ uptake by terrestrial animal.
- 6. Simple heart-beat and muscle curve by drum method.
- 3. Dissection and display of any four the following endocrine glands in a mammal gonad, thyroid, adrenal, Pancreas. 8
- 4. Identification and comment upon the histological slides (four in number) of the 2X4=8 following: Pituitary, Adrenal, Ovary, Testes, Islets Langerhans, Thymus, Thyroid, Parathyroid and Vaginal smears.
- 5. Practical records- 5
- 6. Viva- 5

PRACTICAL**Time: 6 Hours]****PAPER-VIIIB - Dr. Shushama Kulkarni [Full Marks: 50****(Cell Biology, Genetics, Paleozoology and Evolution)**

- | | |
|--|-----------|
| 1. Cells Biology- | 10 |
| 1. Vital staining of secretory granules in Salivary glands of Cockroach and Mitochondria in the buccal epithelium. | |
| 2. Genetics: | 8 |
| 1. Acetocarmine stained squash preparation of the onion root tips and testes of grasshopper to demonstrate stages of mitotic and meiotic divisions respectively. | |
| 2. Acetocarmine preparation of the giant chromosomes of the chironomus/drosophila larvae. | |
| 3. Evolution and Paleontology: | 12 |
| 1. Serial homology is exhibited by the appendages of prawn. | |
| 2. Homology and Analogy as exhibited by the wings of birds, bat and insect. | |
| 3. Adaptive radiation as exhibited by beaks of birds and dentition of mammals. | |
| 4. Study of Fossils. | |
| 4. Identification and comments upon the specimens/slides on Economic Zoology (3) 2X5=10 and Cytology (2). | |
| 5. Practical Record | 5 |
| 6. Viva | 5 |

